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EXAMINER

HAM, SEUNGSOOK

ART UNIT PAPER NUMBER

2817

DATE MAILED: 07/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/796,398

Applicant(s)

MCKINZIE, WILLIAM E.

Examiner

Seungsook Ham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) 39-49 and 52 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-38, 50 and 51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>6/21/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Species IV in the reply filed on May 11, 2005 is acknowledged. The traversal is on the ground(s) that the election requirement is improper at least because the Office Action failed to establish that the alleged species are patentably distinct. This is not found persuasive because the examiner listed patentably distinct feature in each species in the last Office Action (mailed on 4/14/05, see page 2). Moreover, the applicant failed to traverse on the ground that why these species are not patentably distinct (see last Office Action, page 3, last paragraph).

Furthermore, the applicant stated that all of claims 1-53 are readable on the elected Species. However, claims 39-49 and 52 (the original claims 40-50 and 53, see claim objection below) are read on non-elected Species. For example, claim 39, "three dimensional periodic loaded wire media model" is shown in non-elected Species, figure 5(a)-7(c).

Therefore, claims 39-49 and 52 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Species I-III and V-VII, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 11, 2005.

Drawings

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid

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abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the subject matter of claims 14 and 27 are not disclosed in the specification.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not).

Misnumbered claims 36-53 been renumbered to claims 35-52 (Note that there is no claim 35 in the original claims).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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Claims 2-9, 11-13, 15-26, and 28-35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 2-9, 11, 12, 15-22, 24, 25, and 28-35, "the first and second conducting planes" lacks antecedent basis (suggests the term, --upper and lower conducting planes--, for consistency in terminology).

In claim 6, "the first and second conducting pads" lacks antecedent basis (suggests the term, --upper and lower conducting pads--, for consistency in terminology).

In claims 9, 22 and 35, "the combined inductance and capacitance of the resonant element" lacks antecedent basis.

In claims 13 and 26, "the number, geometry, inductance, and capacitance of the discrete conductors" lacks antecedent basis.

In claims 16 and 29, "at least some of the plurality" is unclear as to which element refers to.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3, 5, 8-12, 16-18, 21-25, 29, 31, 34-38, 50 and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Riad (US '597).

Riad (figs. 12A-14) discloses a resonant element/electromagnetically reactive structure/layered assembly comprising: an upper conducting plane disposed in a first plane of symmetry (see fig. 12A, where the top layer/conductor 50 is located at); a lower conducting plane disposed in a second plane of symmetry (where the bottom layer/conductor 54 is located at); a resonant via 52 comprises a plated through-hole via (see figs. 2 and 3); an upper conducting pad 50 coupled to one end of the resonant via and disposed in a plane parallel to the first plane of symmetry; and a lower conducting pad 54 coupled to the other end of the resonant via (via capacitive coupling) and disposed in a plane substantially parallel to the second plane of symmetry.

Regarding claims 3, 16, and 29, Riad (fig. 12D) discloses the upper conducting pad 68 is internal relative to the first and second conducting planes 50, 54.

Regarding claims 5, 18 and 31, Riad (fig. 12A and 13) discloses the lower conducting pad 52 is internal relative to the first and second conducting planes.

Regarding claims 9, 22 and 35 (insofar as understood), Riad (fig. 6) shows the combined inductance 20LV and capacitance 20CV of the resonant element 20 forms an electromagnetically resonant shunt circuit between the first and second conducting planes for a certain frequency range (i.e., resonant frequency).

Regarding claims 10-12 and 23-25, a plurality of resonant vias forms a plurality of resonators (fig. 2) disposed in a two-dimensional periodic array laying between the first and second conducting planes (fig. 6) wherein the first and second conducting planes comprise a waveguide (e.g., transmission line).

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Regarding claims 36-38, Riad discloses that the layered assembly can be a printed circuit board, integrated semiconductor chip or multi-chip module (col. 1, lines 12-21).

Regarding claims 50 and 51, Riad (fig. 2) discloses some of the resonators form a periodic array having a first period (between first and second resonant vias 14), and the remainder of the resonators form a periodic array having a second period that is an integer multiple (e.g., same period) of the first period (between the second and third resonant vias 14).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6, 13, 14, 19, 26, 27 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riad (US '597).

Regarding claims 6, 19 and 32, it would have been obvious to provide both first and second conducting pads internal relative to the first and second conducting planes since Riad (fig. 12D) shows both upper and lower conducting pads of resonant vias are located in internal relative to the first and second conducting planes.

Regarding claims 13, 14, 26, and 27, it would have been obvious to modified the number, geometry, inductance, capacitance or spacing between the resonators to

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obtain a desired stop band frequency since Riad teaches that the capacitance and inductance in the resonant via can be varied (see col. 5).

Claims 2, 4, 7, 15, 17, 20, 28, 30 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Riad (US '597) in view of Hreish et al. (US '538).

Riad does not show the upper and/or lower conducting pad is external relative to the first and second conducting planes.

Hreish et al. (figs. 12 and 13) discloses a resonant via having upper and lower conducting pads 82, 84 is external relative to the first and second conducting planes.

It would have been obvious to one of ordinary skill in the art to provide the upper and/or lower conducting pad external to the first and second conducting planes in the device of Riad to obtain a desired impedance characteristic/resonant frequency as taught by Hreish et al. (col. 8, lines 4-38).

Information Disclosure Statement

Applicant is required to submit publication date for the Lee article, "A Vertical Leap for Microchips".

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Yamamoto et al. (fig. 2) discloses a via disposed inside of the upper and lower grounding plane.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seungsook Ham whose telephone number is (571) 272-2405. The examiner can normally be reached on Monday-Thursday, 8:00AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (571)-272-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Seungsook Ham
Primary Examiner
Art Unit 2817

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